



ESAT Region 8 Chain of Custody Form
U.S. Environmental Protection Agency
Region 8 Superfund Program

1237682 - R8 SDMS

Site Name: Rico-Argentina - Surface Water - Nov 2010 TDF: D6-220

Site Manager: Steve Way Work Order: C101104

Relinquished By:

Print Name: Scott DeCanina Date: 12/8/10 Signature: [Signature]

Received By:

Print Name: Don Goodrich Date: 12/8/10 Signature: [Signature]

Relinquished By:

Print Name: Date: Signature:

Received By:

Print Name: Steven Way Date: 12/8/10 Signature: [Signature]

Relinquished By:

Print Name: Date: Signature:

Received By:

Print Name: Rodney Vargas Date: 5/18/12 Signature: [Signature]



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Environmental Services Assistance Team  
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(303) 312-7720

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Task Order: 32 - Analytical and Data Validation Support  
DCN#: EP8 - 5 - 5600  
Contract: EP-W-06-33  
TDF#: D220  
Line Item: All  
TDF Status: In Progress  
Date: 12/2/2010  
To: Don Goodrich, USEPA, Region 8 ESAT Task Order Project Officer  
From: Scout DellaMia, ESAT Environmental Scientist  
Through: John Calanni, Region 8 ESAT Team Manager  
Subject: Rico-Argentine - Surface Waters - Nov 2010 (C101104)

Comments:

11/18/2010 Received 33 Water Samples for the following analyses:

Total Recoverable Metals by ICP-OE  
Total Recoverable Metals by ICP-MS  
Dissolved Metals / Hardness by ICP-OE  
Dissolved Metals ICP-MS  
WC-Alkalinity

Thank You

# Deliverable Submission and Evaluation Form

EPA Region 8 ESAT

Contractor: TechLaw

Updated: 04/06/2009

Contract No: EP-W-06-33

## Submission Information (to be completed by ESAT):

Task Order: 32 - Analytical and Data Validation Support			
DCN:	EP8 -5 - 5600		
TDF:	D220	Line Item: All	TDF Status: In Progress
Submission Date: 12/2/2010			
Submitted By: Scout DellaMia, ESAT Environmental Scientist			
<b>Deliverable Description:</b>			
Rico-Argentine - Surface Waters - Nov 2010 (C101104)			
<b>Submitter Comments:</b>			
Hardcopy Data Report and Hardcopy Raw Data + CD-ROM with Data Report .pdf, Scribe EXCEL EDD, and Raw Data .pdf			

## Evaluation Information (to be completed by EPA):

Review Date:	12-9-2010
Reviewed by:	James McDonald
Evaluation:	<input checked="" type="checkbox"/> This deliverable is considered acceptable.
	<input type="checkbox"/> This deliverable requires revisions as noted below or per attached.
<b>Evaluation Comments:</b>	
completeness check 12-9-2010	



U.S. Environmental Protection Agency  
Region 8  
Technical and Management Services

Laboratory Services Program

Certificate of Analysis

Ref: 8TMS-L

MEMORANDUM

Date: 12/01/10

Subject: Analytical Results--- **Rico-Argentine - Surface Waters - Nov 2010 / DG-220**

From: Don Goodrich; EPA Region 8 Analytical Chemistry WAM

To: Steve Way  
Superfund  
1595 Wynkoop Street

Received Sample Set(s), [Work Order : Date Received]:  
[ C101104 : 11/18/2010 ]

Attached are the analytical results for the samples received from the Rico-Argentine - Surface Waters - Nov 2010 sampling event, according to TDF DG-220. All analyses were performed within their method specified holding times unless otherwise noted in the following narrative.

These samples were prepared, analyzed, and verified by the Environmental Services Assistance Team Laboratory (ESAT) according to the requirements of the Technical Direction Form (TDF).

Note: The laboratory herewith transmits this deliverable to the program/project partner for determination of "final data usability" which may include data validation and data quality assessment per and in accordance with EPA QA/G-8, *Guidance on Environmental Data Verification and Data Validation*, November 2002, EPA/240/R-02/004. Laboratory data qualifiers are applied based on the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*, October 2004, referred to as "NFGI".

TDF #:

DG-220

### Case Narrative

C101104

Quality Assessment: Unless indicated by exception, the QA/QC associated with this sample set produced data within the TDF-specified criteria.

Holding Times: All samples were analyzed within their method-specified technical holding time(s).

1. Initial and Continuing calibration blanks (ICBs and CCBs).  
Exceptions: None.
2. Preparation (PB) / Method blanks (MB)  
Exceptions: None.
3. Interference Checks (ICSA / ICSAB) for ICP-MS and ICP-OE analyses only.  
Exceptions: None.
4. Initial and Continuing calibration verification analyses (ICVs and CCVs).  
Exceptions: None.
5. Laboratory Control Sample (LCS) or second source analysis or SRM.  
Exceptions: None.
6. Laboratory Fortified blank (LFB) / Blank spike (BS), same source as used for the matrix spikes. PBS performed with analyses/methods requiring preparation or digestion prior to analysis.  
Exceptions: None.
7. Contract Reporting Detection Limit Standard, labeled as CRA, CRDL or CRL.  
Exceptions: None.
8. Laboratory Duplicate (DUP). "Source" identifies field sample duplicated in the laboratory. If either the "source" or the duplicate result is <5X the reporting limit, the %D limit of 20% does not apply.  
Exceptions: None.
9. Laboratory Matrix Spike (MS) and spike duplicate (MSD). "Source" defines original field sample fortified prior to analysis. Percent recovery (%R) limits do not apply when sample concentration(s) exceed the corresponding analyte spike level by a factor of 4 or greater.  
Exceptions: None.
10. Serial Dilution sample analysis (SRD). "Source" is parent field sample diluted 1:5 in the laboratory. Performed for ICP-OE and ICP-MS metals analyses. Percent difference (%D) limits do not apply when analyte concentration(s) are below 50x the source sample's MDL (or 10x it's PQL).  
Exceptions: In ICP-MS sequence 1011114, manganese recovered high in SRD2. As a result, the source sample for manganese was qualified "J" as estimated.
11. Internal standards, criteria specified for ICP-MS analyses only, monitored at the instrument.  
Exceptions: None.
12. Any calibration using more than two-points produced a correlation coefficient equal to or greater than 0.995.  
Exceptions: None.

TDF #: DG-220

## Acronyms and Definitions:

ESAT	Environmental Services Assistance Team
J	Data Estimated qualifier (also applied to all data less than PQL, greater than or equal to MDL)
MDL	Method Detection Limit
PQL	Practical Quantitation Limit, also known as reporting limit.
RPD	Relative Percent Difference (difference divided by the mean)
%D	Percent difference, serial dilution criteria unit, difference divided by the original result.
%R	Percent recovery, analyzed (less sample contribution) divided by true value
<	Analyte NOT DETECTED at or above the Method Detection Limit (MDL)
mg/L	Parts per million (milligrams per liter). Solids equivalent = mg/Kg.
ug/L	Parts per billion (micrograms per liter). Solids equivalent = ug/Kg.
NR	No Recovery (matrix spike) - Often seen for calcium/magnesium when their concentration exceeds the spike level by > 4x.
NFGI	USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, October 2004
RE	Sample Re-analysis. Usually seen on raw data and sequences for required sample dilutions due to over-range analytes.

## Method(s) Summary:

As defined in the Technical Direction Form (TDF), some or all of the methods listed below were used for the determination of the reported target analytes.

From EPA's *Methods for the Determination of Metals in Environmental Samples*, Supplement I, May 1994, dissolved, total, and/or total recoverable metals were determined by:

- Method 200.7 / 6010B using a PE Optima ICP-OE (ICP).
- Method 200.8 / 6020 using a Perkin-Elmer Elan 6000 ICP-MS.
- Method 200.2 for total recoverable metals (only) digestion.
- Method 245.1 using a Perkin-Elmer FIMS CVAA (aqueous mercury only).

From *Standard Methods for the Examination of Water and Wastewater*, 18<sup>th</sup> Edition, 1992, Method 2340B was used for the calculated hardness determination. Hardness is reported as mg(milligram) equivalent CaCO<sub>3</sub> per liter (L) determined as follows:

$$\text{Calculated hardness} = 2.497 * (\text{Calcium, mg/L}) + 4.118 * (\text{Magnesium, mg/L}).$$

From EPA's *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*,

- Method 3015A was used for microwave assisted total metals digestion.
- Method 7473 was used for mercury in solids.

From EPA's *Determination of Inorganic Anions by Ion Chromatography*, Revision 2.1, 1993, Method 300.0 was used to determine the anions.

From EPA's *Methods for Chemical Analysis of Water and Wastes*, March 1983:

- Method 310.1 was followed for the alkalinity determination.
- Method 160.1 was followed for gravimetric total dissolved solids (TDS) determination.
- Method 160.2 was used for gravimetric total suspended solids (TSS) determination.
- Method 415.3 was used for total organic carbon (TOC) determination using either an Apollo 9000 or Phoenix 8000 Non-Dispersive IR (NDIR) system. Also known as dissolved organic carbon (DOC) when performed on the dissolved sample fraction.

The quality control procedures listed in the TDF request were utilized by ESAT to verify accuracy of the results and to evaluate any matrix interferences.

TDF #:

DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLDRBG  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/17/10 11:45  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-03 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 50.0	U	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	67.2		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	42500		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	6430		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	651	J	ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	2730		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	< 20.0	U	ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 2.00	U	ug/L	0.500	1	11/29/2010	SV	1011111
200.8	Cadmium	< 0.200	U	ug/L	0.100	1	11/29/2010	SV	1011111
200.8	Chromium	2.95		ug/L	0.500	1	11/29/2010	SV	1011111
200.8	Cobalt	< 0.200	U	ug/L	0.100	1	11/29/2010	SV	1011111
200.8	Copper	< 1.00	U	ug/L	0.500	1	11/29/2010	SV	1011111
200.8	Lead	< 0.200	U	ug/L	0.100	1	11/29/2010	SV	1011111
200.8	Manganese	11.3		ug/L	0.200	1	11/29/2010	SV	1011111
200.8	Nickel	< 1.00	U	ug/L	0.500	1	11/29/2010	SV	1011111
200.8	Selenium	0.892	J	ug/L	0.500	1	11/29/2010	SV	1011111
200.8	Silver	0.116	J	ug/L	0.100	1	11/29/2010	SV	1011111
2340B	Hardness	133		mg/L	2	1	11/29/2010	SV	1011109

TDF #:

DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLDRBG DUP  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/17/10 11:45  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-06 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 50.0	U	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	67.3		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	42400		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	6410		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	632	J	ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	2760		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	< 20.0	U	ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	5.45		ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	4.19	J	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	11.1		ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	1.75	J	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	132		mg/L	2	1	11/29/2010	SV	1011109

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLDRMZ1a  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/17/10 14:15  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-09 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 50.0	U	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	61.8		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	54500		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	7570		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	858	J	ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	3370		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	30.5		ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	5.70		ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	126		ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	167		mg/L	2	1	11/29/2010	SV	1011109

Project Name: Rico-Argentine - Surface Waters - Nov 2010

Certificate of Analysis

TDF #: DG-220

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLDRMZ1b  
 EPA Tag No.: No Tag Prefix-C

Date / Time Sampled: 11/17/10 14:15  
 Matrix: Surface Water

Workorder: C101104  
 Lab Number: C101104-12 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	24.6	J	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	59.8		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	65800		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	8470		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	928	J	ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	3970		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	176		ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	0.736	J	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	5.17		ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	224		ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	199		mg/L	2	1	11/29/2010	SV	1011109

TDF #:

DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLDRMZ1c  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/17/10 14:15  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-15 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	31.3	J	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	55.3		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	83000		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	9830		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	1050		ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	4790		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	390		ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	1.87		ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	5.94		ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	361		ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	248		mg/L	2	1	11/29/2010	SV	1011109

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLDRMZ2  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/17/10 14:05  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-18 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	20.9	J	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	59.7		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	66000		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	8500		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	955	J	ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	3950		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	173		ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	0.513	J	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	5.51		ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	224		ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	37.4		ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	200		mg/L	2	1	11/29/2010	SV	1011109

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLPO01  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/17/10 11:19  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-21 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	20.6	J	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	51.6		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	68100		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	7920		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	825	J	ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	2340		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	17.1	J	ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	7.48		ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	30.9		ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	203		mg/L	2	1	11/29/2010	SV	1011109

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLPO02      Date / Time Sampled: 11/17/10 10:48      Workorder: C101104  
 EPA Tag No.: No Tag Prefix-C      Matrix: Surface Water      Lab Number: C101104-24 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	23.5	J	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	47.9		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	73600		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	5310		ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	7320		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	1200		ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	2860		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	< 20.0	U	ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	6.22		ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	0.616	J	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	0.529	J	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	2480		ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	214		mg/L	2	1	11/29/2010	SV	1011109

Project Name: Rico-Argentine - Surface Waters - Nov 2010

Certificate of Analysis

TDF #:

DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLPO03  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/17/10 10:32  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-27 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 50.0	U	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	45.0		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	61900		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	7540		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	776	J	ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	2350		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	131		ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	5.55		ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	2.66		ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	5.28		ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	6.59		ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	186		mg/L	2	1	11/29/2010	SV	1011109

Project Name: Rico-Argentine - Surface Waters - Nov 2010

Certificate of Analysis

TDF #:

DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLPO04

Date / Time Sampled: 11/17/10 10:15

Workorder: C101104

EPA Tag No.: No Tag Prefix-C

Matrix: Surface Water

Lab Number: C101104-30 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	26.8	J	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	21.4		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	224000		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	2360		ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	20100		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	2030		ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	9800		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	10.9	J	ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	3.51	J	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	6.33		ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	1050		ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	643		mg/L	2	1	11/29/2010	SV	1011109

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLPO05 Date / Time Sampled: 11/17/10 09:16 Workorder: C101104  
 EPA Tag No.: No Tag Prefix-C Matrix: Surface Water Lab Number: C101104-33 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	24.1	J	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	17.5		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	238000		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	116	J	ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	22200		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	1700		ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	10800		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	580		ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	2.87		ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	3.83	J	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	176		ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	686		mg/L	2	1	11/29/2010	SV	1011109

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLSW01  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/17/10 11:19  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-36 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 50.0	U	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	56.2		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	67200		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	7980		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	793	J	ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	2360		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	< 20.0	U	ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	6.19		ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	5.48		ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	201		mg/L	2	1	11/29/2010	SV	1011109

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLSW02  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/17/10 10:48  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-39 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 50.0	U	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	58.2		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	61800		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	7500		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	758	J	ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	2370		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	10.1	J	ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	4.61	J	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	2.03	J	ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	185		mg/L	2	1	11/29/2010	SV	1011109

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLSW03  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/17/10 10:10  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-42 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 50.0	U	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	54.2		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	57900		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	7110		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	705	J	ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	2250		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	< 20.0	U	ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	5.33		ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	< 2.50	U	ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	174		mg/L	2	1	11/29/2010	SV	1011109

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLSW04  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/17/10 09:50  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-45 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 50.0	U	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	55.9		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	67200		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	7980		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	783	J	ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	2620		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	< 20.0	U	ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	4.83	J	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	45.6		ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	201		mg/L	2	1	11/29/2010	SV	1011109

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLSW05  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/17/10 11:55  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-48 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	22.7	J	ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	13.3		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	231000		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	21500		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	1590		ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	10500		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	918		ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	4.76		ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	4.89	J	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	< 2.50	U	ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	2.88	J	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	665		mg/L	2	1	11/29/2010	SV	1011109

Project Name: Rico-Argentine - Surface Waters - Nov 2010

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TDF #: DG-220

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLSWDR3	Date / Time Sampled: 11/16/10 09:20	Workorder: C101104
EPA Tag No.: No Tag Prefix-C	Matrix: Surface Water	Lab Number: C101104-51 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	110		ug/L	20.0	1	11/29/2010	SV	1011109
200.7	Barium	17.6		ug/L	2.00	1	11/29/2010	SV	1011109
200.7	Calcium	241000		ug/L	100	1	11/29/2010	SV	1011109
200.7	Iron	2830		ug/L	100	1	11/29/2010	SV	1011109
200.7	Magnesium	20400		ug/L	100	1	11/29/2010	SV	1011109
200.7	Potassium	1750		ug/L	250	1	11/29/2010	SV	1011109
200.7	Sodium	11100		ug/L	250	1	11/29/2010	SV	1011109
200.7	Zinc	3580		ug/L	10.0	1	11/29/2010	SV	1011109
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cadmium	16.3		ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Chromium	5.10		ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Cobalt	0.599	J	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Copper	9.17		ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011111
200.8	Manganese	1760		ug/L	1.00	5	11/29/2010	SV	1011111
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011111
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011111
2340B	Hardness	687		mg/L	2	1	11/29/2010	SV	1011109

Project Name: Rico-Argentine - Surface Waters - Nov 2010

Certificate of Analysis

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLSWDR4  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/16/10 09:30  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-54 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	102		ug/L	20.0	1	11/29/2010	SV	1011110
200.7	Barium	17.8		ug/L	2.00	1	11/29/2010	SV	1011110
200.7	Calcium	241000		ug/L	100	1	11/29/2010	SV	1011110
200.7	Iron	2860		ug/L	100	1	11/29/2010	SV	1011110
200.7	Magnesium	20400		ug/L	100	1	11/29/2010	SV	1011110
200.7	Potassium	1740		ug/L	250	1	11/29/2010	SV	1011110
200.7	Sodium	11100		ug/L	250	1	11/29/2010	SV	1011110
200.7	Zinc	3630		ug/L	10.0	1	11/29/2010	SV	1011110
200.8	Arsenic	< 20.0	U	ug/L	5.00	10	11/29/2010	SV	1011112
200.8	Cadmium	16.8		ug/L	1.00	10	11/29/2010	SV	1011112
200.8	Chromium	< 10.0	U	ug/L	5.00	10	11/29/2010	SV	1011112
200.8	Cobalt	< 2.00	U	ug/L	1.00	10	11/29/2010	SV	1011112
200.8	Copper	11.7		ug/L	5.00	10	11/29/2010	SV	1011112
200.8	Lead	< 2.00	U	ug/L	1.00	10	11/29/2010	SV	1011112
200.8	Manganese	1830	J	ug/L	2.00	10	11/29/2010	SV	1011112
200.8	Nickel	< 10.0	U	ug/L	5.00	10	11/29/2010	SV	1011112
200.8	Selenium	< 10.0	U	ug/L	5.00	10	11/29/2010	SV	1011112
200.8	Silver	1.31	J	ug/L	1.00	10	11/29/2010	SV	1011112
2340B	Hardness	687		mg/L	2	1	11/29/2010	SV	1011110

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLSWDR6      Date / Time Sampled: 11/16/10 14:00      Workorder: C101104  
 EPA Tag No.: No Tag Prefix-C      Matrix: Surface Water      Lab Number: C101104-57 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	37.4	J	ug/L	20.0	1	11/29/2010	SV	1011110
200.7	Barium	16.6		ug/L	2.00	1	11/29/2010	SV	1011110
200.7	Calcium	254000		ug/L	100	1	11/29/2010	SV	1011110
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011110
200.7	Magnesium	23100		ug/L	100	1	11/29/2010	SV	1011110
200.7	Potassium	2370		ug/L	250	1	11/29/2010	SV	1011110
200.7	Sodium	13200		ug/L	250	1	11/29/2010	SV	1011110
200.7	Zinc	2490		ug/L	10.0	1	11/29/2010	SV	1011110
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Cadmium	11.0		ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Chromium	5.68		ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Manganese	1620		ug/L	1.00	5	11/29/2010	SV	1011112
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011112
2340B	Hardness	730		mg/L	2	1	11/29/2010	SV	1011110

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLSWDR7b  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/16/10 16:50  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-60 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	24.2	J	ug/L	20.0	1	11/29/2010	SV	1011110
200.7	Barium	60.4		ug/L	2.00	1	11/29/2010	SV	1011110
200.7	Calcium	67500		ug/L	100	1	11/29/2010	SV	1011110
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011110
200.7	Magnesium	8960		ug/L	100	1	11/29/2010	SV	1011110
200.7	Potassium	1130		ug/L	250	1	11/29/2010	SV	1011110
200.7	Sodium	4390		ug/L	250	1	11/29/2010	SV	1011110
200.7	Zinc	143		ug/L	10.0	1	11/29/2010	SV	1011110
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Cadmium	0.647	J	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Chromium	4.91	J	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Manganese	205		ug/L	1.00	5	11/29/2010	SV	1011112
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011112
2340B	Hardness	206		mg/L	2	1	11/29/2010	SV	1011110

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLSWDR7c  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/16/10 16:50  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-63 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	22.5	J	ug/L	20.0	1	11/29/2010	SV	1011110
200.7	Barium	59.5		ug/L	2.00	1	11/29/2010	SV	1011110
200.7	Calcium	67300		ug/L	100	1	11/29/2010	SV	1011110
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011110
200.7	Magnesium	8910		ug/L	100	1	11/29/2010	SV	1011110
200.7	Potassium	1130		ug/L	250	1	11/29/2010	SV	1011110
200.7	Sodium	4360		ug/L	250	1	11/29/2010	SV	1011110
200.7	Zinc	70.6		ug/L	10.0	1	11/29/2010	SV	1011110
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Cadmium	0.551	J	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Chromium	5.70		ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Manganese	210		ug/L	1.00	5	11/29/2010	SV	1011112
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011112
2340B	Hardness	205		mg/L	2	1	11/29/2010	SV	1011110

Project Name: Rico-Argentine - Surface Waters - Nov 2010

Certificate of Analysis

TDF #: DG-220

Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLSWFB Date / Time Sampled: 11/17/10 18:00 Workorder: C101104  
 EPA Tag No.: No Tag Prefix-C Matrix: Surface Water Lab Number: C101104-66 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	< 50.0	U	ug/L	20.0	1	11/29/2010	SV	1011110
200.7	Barium	< 5.00	U	ug/L	2.00	1	11/29/2010	SV	1011110
200.7	Calcium	< 250	U	ug/L	100	1	11/29/2010	SV	1011110
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011110
200.7	Magnesium	< 250	U	ug/L	100	1	11/29/2010	SV	1011110
200.7	Potassium	< 1000	U	ug/L	250	1	11/29/2010	SV	1011110
200.7	Sodium	< 500	U	ug/L	250	1	11/29/2010	SV	1011110
200.7	Zinc	< 20.0	U	ug/L	10.0	1	11/29/2010	SV	1011110
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Cadmium	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Chromium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Manganese	< 2.50	U	ug/L	1.00	5	11/29/2010	SV	1011112
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011112
2340B	Hardness	< 2		mg/L	2	1	11/29/2010	SV	1011110

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLSWP06  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/16/10 13:45  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-69 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	26.4	J	ug/L	20.0	1	11/29/2010	SV	1011110
200.7	Barium	16.5		ug/L	2.00	1	11/29/2010	SV	1011110
200.7	Calcium	255000		ug/L	100	1	11/29/2010	SV	1011110
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011110
200.7	Magnesium	23100		ug/L	100	1	11/29/2010	SV	1011110
200.7	Potassium	2330		ug/L	250	1	11/29/2010	SV	1011110
200.7	Sodium	13100		ug/L	250	1	11/29/2010	SV	1011110
200.7	Zinc	2460		ug/L	10.0	1	11/29/2010	SV	1011110
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Cadmium	11.5		ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Chromium	4.39	J	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Manganese	1710		ug/L	1.00	5	11/29/2010	SV	1011112
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011112
2340B	Hardness	731		mg/L	2	1	11/29/2010	SV	1011110

TDF #:

DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLSWP07a  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/16/10 12:15  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-72 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	25.4	J	ug/L	20.0	1	11/29/2010	SV	1011110
200.7	Barium	15.7		ug/L	2.00	1	11/29/2010	SV	1011110
200.7	Calcium	248000		ug/L	100	1	11/29/2010	SV	1011110
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011110
200.7	Magnesium	21600		ug/L	100	1	11/29/2010	SV	1011110
200.7	Potassium	1940		ug/L	250	1	11/29/2010	SV	1011110
200.7	Sodium	11600		ug/L	250	1	11/29/2010	SV	1011110
200.7	Zinc	2520		ug/L	10.0	1	11/29/2010	SV	1011110
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Cadmium	11.3		ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Chromium	3.90	J	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Manganese	1690		ug/L	1.00	5	11/29/2010	SV	1011112
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011112
2340B	Hardness	708		mg/L	2	1	11/29/2010	SV	1011110

TDF #: DG-220

## Metals (Dissolved) by EPA 200/7000 Series Methods

Station ID: SLSWP07b  
EPA Tag No.: No Tag Prefix-CDate / Time Sampled: 11/16/10 12:15  
Matrix: Surface WaterWorkorder: C101104  
Lab Number: C101104-75 A

Method	Parameter	Results	Qualifier	Units	MDL	Dilution Factor	Analyzed	By	Batch
200.7	Aluminum	30.4	J	ug/L	20.0	1	11/29/2010	SV	1011110
200.7	Barium	16.2		ug/L	2.00	1	11/29/2010	SV	1011110
200.7	Calcium	248000		ug/L	100	1	11/29/2010	SV	1011110
200.7	Iron	< 250	U	ug/L	100	1	11/29/2010	SV	1011110
200.7	Magnesium	21500		ug/L	100	1	11/29/2010	SV	1011110
200.7	Potassium	1920		ug/L	250	1	11/29/2010	SV	1011110
200.7	Sodium	11500		ug/L	250	1	11/29/2010	SV	1011110
200.7	Zinc	2550		ug/L	10.0	1	11/29/2010	SV	1011110
200.8	Arsenic	< 10.0	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Cadmium	11.3		ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Chromium	3.93	J	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Cobalt	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Copper	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Lead	< 1.00	U	ug/L	0.500	5	11/29/2010	SV	1011112
200.8	Manganese	1680		ug/L	1.00	5	11/29/2010	SV	1011112
200.8	Nickel	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Selenium	< 5.00	U	ug/L	2.50	5	11/29/2010	SV	1011112
200.8	Silver	< 2.50	U	ug/L	0.500	5	11/29/2010	SV	1011112
2340B	Hardness	708		mg/L	2	1	11/29/2010	SV	1011110